2N® SingleTalk

Lift Communicator

User Manual

Version 6.1.0

www.2n.cz

The 2N TELEKOMUNIKACE joint-stock company is a Czech manufacturer and supplier of telecommunications equipment.

The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.

2N® is a registered trademark of 2N TELEKOMUNIKACE a.s.. Any product and/or other names mentioned herein are registered trademarks and/or trademarks or brands protected by law.

2N TELEKOMUNIKACE administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On www.faq.2n.cz you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...".

2N TELEKOMUNIKACE hereby declares that the 2N® SingleTalk product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM enclosed and at www.2n.cz.

The 2N TELEKOMUNIKACE company is the holder of the ISO 9001:2009 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our.

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1. Product Overview

In this section, we introduce the **2N® SingleTalk** product, outline its application options and highlight the advantages following from its use.
Here is what you can find in this section:

- 1.1 Product Description
- 1.2 Components and Associated Products
- 1.3 Changes
- 1.4 Terms and Symbols Used

1.1 Product Description

Basic Features

- The **SingleTalk** (**ST**) is intended primarily for lifts – especially in buildings, where there is just one lift and no internal communication between the lift car and the machine room/shaft bottom/lift car roof is needed (**2N® LiftNet** is designed for more complex applications).
- The **ST** is a Speakerphone in principle. This means that, built-in behind the lift panel (wall surface), the **ST** microphone and loudspeaker are used for bi--directional voice communication.
- The **ST** can be connected directly to a PSTN line, being supplied from this line. Thus, it **requires no battery** and **no maintenance**. It can be connected to any local PBX line or a GSM gateway too (refer to the Associated products).
- The **ST** cannot be misused to someone else's debit because it can dial the pre-programmed numbers only.
- On the top of it, the **ST** can be provided with various extending modules as needed either on purchase, or any time later.

Advantages of use

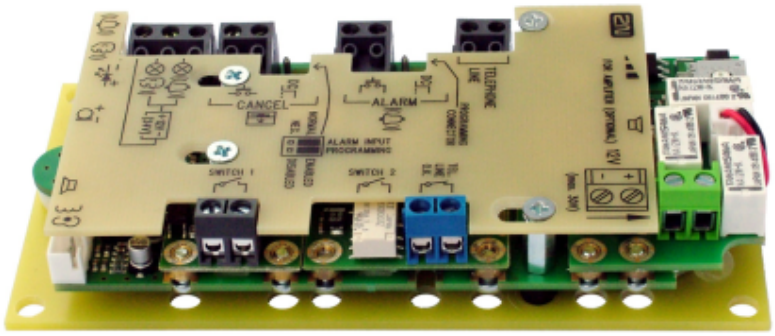
- Basic messages even without the voice recording module
- Messages of a variable length of 0 to 30 seconds – with the voice recording module only
- Checking Call once in 3 days
- Digitally adjustable acoustic properties (remote setting)
- Function indication – two LEDs compliant with applicable lift regulations
- Phone-based programming and checking
- Hang-up and busy line detection
- Automatic repeated dialing of multiple numbers
- Protection against unintentional or unneeded initiation (CANCEL)
- Call control from the dispatching center
- No need of power supply
- Easy installation onto any panel
- Approved for connection to the PSTN

New features

- Amplifier module
- Lift blocking module
- Optional indication elements – backlit pictograms(incl. incandescent lamps)

1.2 Components and Associated Products

Basic Unit – Universal version

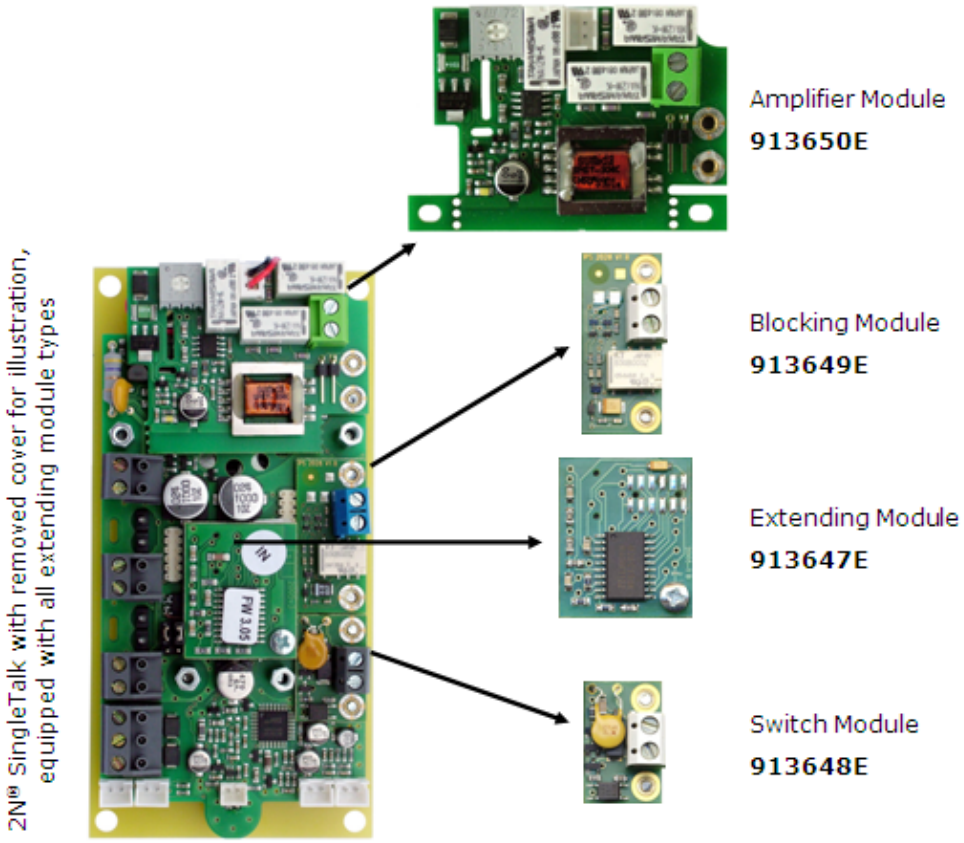


These units are designed for mounting behind the lift panel, which is pre-drilled for installation.

Part No., Name	Description
913640E **2N® SingleTalk** –basic version	▪ successor to **913401** ▪ basic model (fully upgradeable) ▪ provides automatic dialling of two numbers without extending ▪ reproduces manufacturer-recorded messages
913641E **2N® SingleTalk** –full version	▪ successor to **913408** ▪ contains module **913647** ▪ enables to record and reproduce own messages ▪ extends automatic dialling up to 6 numbers
913642E **2N® SingleTalk** –basic vision + blocking module	▪ contains module **913649E** ▪ enables to block the lift in case of telephone line silure
913643E **2N® SingleTalk** –full vision + blocking module	▪ contains modules **913647** and **913649E** ▪ enables to record and reproduce own messages ▪ extends automatic dialling up to 6 numbers ▪ enables to block the lift in the case of telephone line failure

Extending modules for Basic Unit 91364x

Part No., Name	Description	
913647E **2N®** **SingleTalk** – Extending Module	▪ Enables to record and reproduce messages ▪ Extends automatic dialling up to 6 numbers	
913648E **2N®** **SingleTalk** – Switch Module	▪ DTMF remote controlled universal switch (during connection). Up to 2 switches, or one switch plus one blocking module can be used.	
913649E **2N®** **SingleTalk** – Blocking Module	▪ A special switch used for blocking the lift in case of telephone line failure.	
913650E **2N®** **SingleTalk** – Amplifier Module	Speaker amplifier for noisy environment. Adjustable gain.	
913621E **2N®** **SingleTalk** – Induction Loop	Induction Loop for people with a hearing aid. Coil in a holder with 1 m cable.	



Basic Unit – Compact Version

The Compact communicator is designed for quick and easy installation into any lift without advance preparation.

Order No., Name	Description
913644E **2N® Single Talk Compact**, basic version	no user-defined message recording by phone, no extending option
913645E **2N® Single Talk Compact**, complete version	user-defined message recording by phone

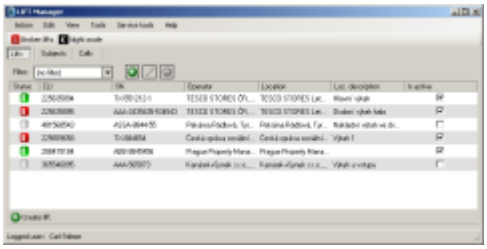
Extending Modules – External

Order No. Name	Description
913646E lift blocking module, external	lift blocking in the event of telephone line failure

Use the product also with other **2N® SingleTalk** communicators, e.g. to save wires in the lift trailing cable. Install the module into the machine room which the telephone line passes through.

Associated Products

913630E 2N® LiftManager



The **2N® LiftManager** software is intended for dispatcher's centres that communicate with the **2N® LiftNet**, **2N® Lift EasyTalk** and **2N® SingleTalk** equipment. The application requires a standard PC-modem configuration and a telephone line. A multiple operator workstation network can be achieved by increasing the number of telephone lines and PCs.

Note: **Service Tools**, a software for **2N® SingleTalk** configuring, upgrading etc. via PC, is a free and can be installed separately, without **2N® LiftManager**.

5013002N® EasyGate

GSM gateway for 2N® LiftNet 2N® SingleTalk

Replaces a fixed telephone line.
Easy installation, no configuration requirements.

501399 2N® EnergyBank
A back-up power supply for 2N® EasyGate

A back-up power supply in the case of power outage.
Easy installation**.**

91360…
91361…
2N® SingleTalk

A communicator designed to connect multiple lifts to a single telephone line, allowing

for local communication between the lift cabin, machine room and other places.

1.3 Changes

Manual Version	Changes
1.0	▪ First versions of the product and User Manual ▪ Functional replacement of the 91340.... series (Lift EasyTalk)
4.0	▪ Addition of the Compact version.
5.0	▪ Changed default values of parameters 902 and 915 ▪ On-board microphone (apart from custom versions)

6.1	▪ All communicators, produced since half of 2010, has a loudspeaker connected by cable, to alow amlifier installation.
	▪ HW issue 5 and higher – optional onboard / external microphone
	▪ HW issue 7 and higher (model 2011):
	  ▪ is equipped with a powerfull 50 mm speaker
	  ▪ amplifier installation is easier.
	▪ SW version 10-08-24:
	  ▪ Changed default values of parameters 913 and 914
	  ▪ Recognizes all dual tones, new parameter 946.
	  ▪ New parameter 975 – extended message options, separately for call before and after confirmation.
	  ▪ Extended DTMF 3 command: plays user recorded message, then identification number and serial number.
	  ▪ New function 995 – tells software version
	  ▪ West Europe language set: English, German, Portuguese, Dutch.
	  ▪ Phone numbers, stored as a factory default (in client-designed versions) are hold over initialization.

The manufacturer reserves the right to modify the product in order to improve its qualities.

1.4 Terms and Symbols Used

Manual Symbols

The following symbols and pictograms are used in the manual:

Safety

- **Always** abide by this information to prevent persons from injury.

Warning

- **Always** abide by this information to prevent damage to the device.

Caution

- **Important information** for system functionality.

Tip

- **Useful information** for quick and efficient functionality.

Note

- Routines or advice for efficient use of the device.

2. Description and Installation

This section describes the **2N® SingleTalk** product and its installation.
Here is what you can find in this section:

- 2.1 Product Description
- 2.2 Before You Start
- 2.3 Mounting – Universal version
- 2.4 Mounting – Compact version
- 2.5 Installation – Universal version
- 2.6 Installation – Compact Version
- 2.7 ST Connecting Options

2.1 Product Description

In principle, **2N® SingleTalk** (hereinafter referred to as **ST**) is a Speakerphone. It is equipped with a microphone, loudspeaker, telephone line terminals, ALARM buttons, backlit pictograms (as required by the applicable standard) and an optional CANCEL input for door opening indication.
ST is available in two versions. **The Universal version** is designed for mounting behind the pre-drilled (according to the drawing, see the Mounting section) lift panel.
The Compact version is provided with a metal case and can be installed quickly and easily without advance preparation.

Operation

Push the ALARM button to activate the device. The "Wait" pictogram goes on immediately, followed by the "Connection established" pictogram after communication has been established.

Universal Version

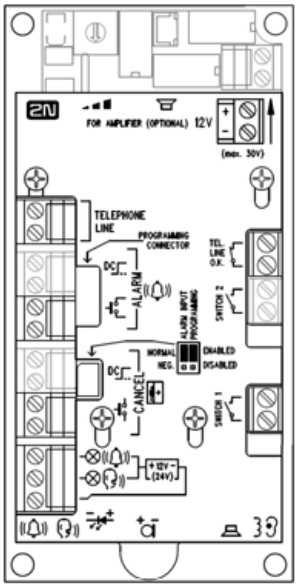
The board with electronics is placed between the mounting panel and the printed cover (see Fig.). The total dimensions are 65×130×24 mm. The loudspeaker and microphone are fitted to the panel. Basic (slide-on) terminals are to the left and extending modules (lift blocking and switch modules) to the right.
The extending module 913647 is under the cover (having no terminals). Small connectors at the bottoms are intended for the induction loop (for people with bad hearing) and LED indicators. Typically, backlit pictograms (even with incandescent lamps) are connected to the product. Neither the pictograms nor the ALARM button are included in the standard delivery (they are lift design elements).

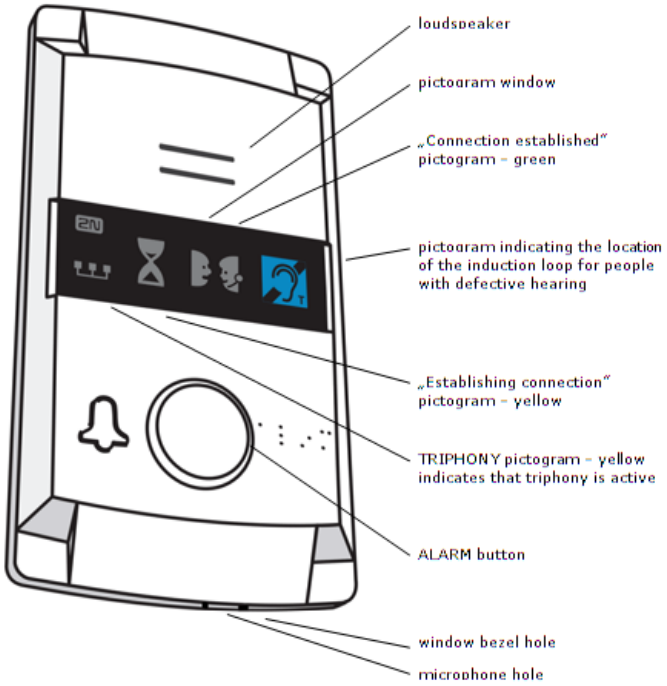
Compact Version

The Compact version is provided with a robust metal case of the size of 100×185×16 mm. The built-in ALARM button is equipped with a yellow plastic pictogram (a bell) and an ALARM sign for the blind on its sides. The backlit pictograms and induction loop for people with bad hearing are in a window made of unbreakable glass. The microphone and loudspeaker are vandal-proof too. Once installed, the product screws are invisible from the lift cabin.

⚠ Caution

- The Compact version does not include the lift blocking module in the case of telephone line failure. You can connect the module parallel to the telephone line, e.g. in the machine room.


FOR AMPLIFIER (OPTIONAL) 12V
(max. 30V)
TELEPHONE LINE
PROGRAMMING CONNECTOR
TEL LINE O.K.
ALARM
SWITCH 2
ALARM INPUT PROGRAMMING
NORMAL NEG.
ENABLED DISABLED
CANCEL
SWITCH 1
+12V (24V)


loudspeaker
pictogram window
„Connection established" pictogram – green
pictogram indicating the location of the induction loop for people with defective hearing
„Establishing connection" pictogram – yellow
TRIPHONY pictogram – yellow indicates that triphony is active
ALARM button
window bezel hole
microphone hole

2.2 Before You Start

Product Completeness Check – Universal version

Check the product for completeness before installation please.

- Main board with covers – equipped with modules according to the following table:

Order No.	Extending Module (Message Recording)	Lift Blocking Module
913640	✗	✗
913641	✓	✗
913642	✗	✓
913643	✓	✓

- Four terminal blocks (line, ALARM, CANCEL, pictograms) have been slided on the left-hand side;
- The loudspeaker and microphone (in client-designed versions, the second microphone can be connected by cable);
- CD with a full manual, Service Tools and **2N® LiftManager**
- This brief manual and a warranty certificate

Product Completeness Check – Compact version

Check the product for completeness before installation please:

- Two terminal blocks (line, CANCEL) should be present on the pins at the lower case connector.
- The following fitting accessories should be enclosed:
  - four M4×30 bolts
  - four M4×8 bolts
  - four fan-shaped washers
  - four M4 nuts
- CD with a full manual, Service Tools and **2N® LiftManager**
- This brief manual and a warranty certificate

ST Installation Conditions

- ST is not designed for outdoor applications.
- The product is connected to a telephone line where life-endangering voltage may occur. Therefore, be sure to keep the safety precautions – refer to the Electric Installation section.
- It is forbidden to connect **ST** parallel to another terminal on a line.
- The lift wall must be perfectly flat.

Tip

- Use a portable telephone to check the telephone line function.
- Do you know the telephone line number to be used? Check its functionality.
- For a PBX line connection, check other relevant conditions as included in the **Ways of ST Connection** section.
- Make sure that the lift panel has been prepared properly for **ST** mounting.

Universal version

- Check the lift panel for advance preparation for **ST** mounting.

Compact version

- It is advisable to mount **ST** where the lift cabin wall is also accessible from the outside (from the lift shaft).

2.3 Mounting – Universal version

Safety Precaution

Safety

- The telephone line supply cable, microphone, loudspeaker, LED indicators, ALARM button and CANCEL contact, including cabling, and the board with electronics are connected with a telephone line and so remember to ensure during installation that the user cannot touch these product parts and is protected against an electrical accident by a minimum isolation distance of 1.5 mm, or an isolation barrier of a minimum break-down voltage of 1,500 V!

Caution

- The location, appearance and designation of the communicator controls (e.g. the ALARM button) have to comply with the applicable lift standards.

ST Location

ST may be mounted into any position as needed, the optimum elevation being approximately the height of an adult's mouth. The **ST** mounting place must be beyond the reach of the operating personnel (see the Safety Precautions).

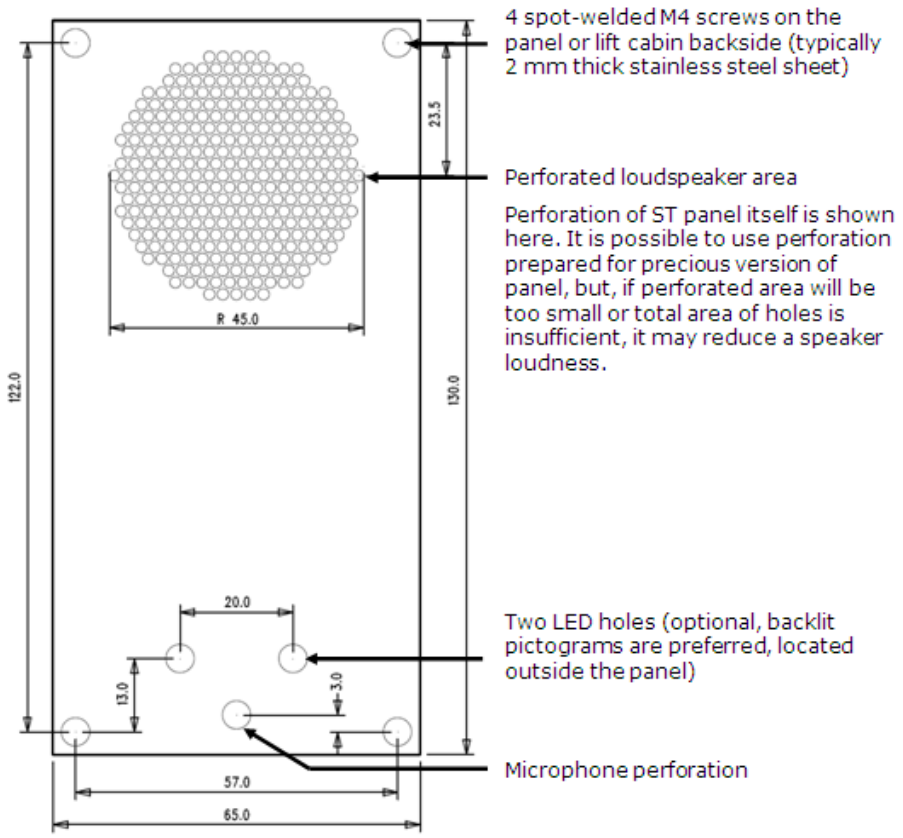
Caution

- You are not recommended to mount the electronics without the mounting panel because the panel works as an electric isolation barrier and the manufacturer cannot guarantee safety if it is not used.

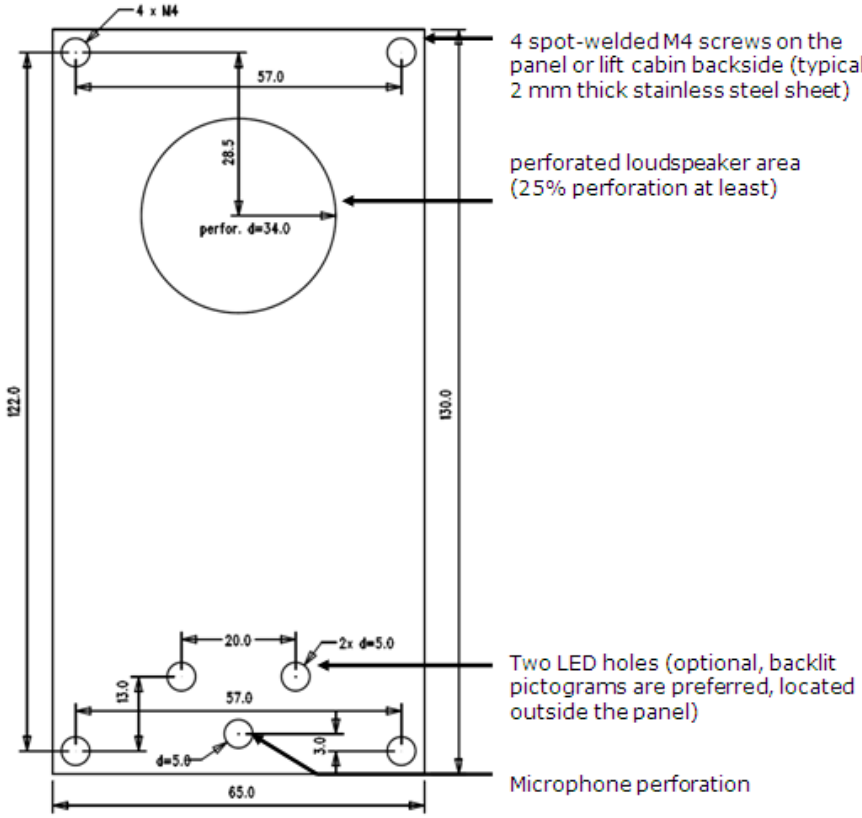
Mounting of Panel with ST Electronics

To mount the **ST** panel onto the lift car interior wall surface you need 4 spot-welded M4 screws in the pitch of 57×122 mm and a sufficiently perforated loudspeaker area (may be larger than as shown on the figure, yet **in no case may overlap the panel size** to avoid acoustic short-circuit), a microphone hole and 2 LED holes if necessary.

Mounting drawing for version with 50 mm speaker


4 spot-welded M4 screws on the panel or lift cabin backside (typically 2 mm thick stainless steel sheet)
Perforated loudspeaker area
Perforation of ST panel itself is shown here. It is possible to use perforation prepared for precious version of panel, but, if perforated area will be too small or total area of holes is insufficient, it may reduce a speaker loudness.
Two LED holes (optional, backlit pictograms are preferred, located outside the panel)
Microphone perforation
23.5
R 45.0
122.0
130.0
20.0
13.0
3.0
57.0
65.0

Mounting drawing for version with 40 mm speaker



Fit the mounting panel in such a way that it cannot vibrate while operation. There may be no gap between the wall surface and the **ST** panel, or, if any, it must be sealed properly to eliminate acoustic short-circuit of the loudspeaker and acoustic coupling between the loudspeaker and the microphone (see later).

Caution

- Make sure that the microphone hole is sealed properly to sense the lift cabin sounds only and suppress the noise coming from the shaft or cavity behind the wall!

Off-Panel Microphone Mounting

By default, the microphone is placed directly on board (see drawing for microphone position). If required, a cable-equipped microphone is available, fitted to a holder of the size of 25×25 mm with self-adhesive foil. This helps mount the microphone behind any hole in the wall surface (a hole with the minimum diameter of 3 mm, or a group of smaller holes of the same total area). Board of version 5 and higher has both onboard microphone and the connector for external one. Switching to external microphone is automatic (external microphone is detected).

The minimum distance between the loudspeaker and microphone centers is 90 mm. With a smaller distance an acoustic coupling might occur. A bigger distance, however, is allowed.

Warning

- Make sure that the microphone hole is sealed properly against noise coming from the cavity behind the wall in order and thus senses the lift car sounds only!

Off-Panel Loudspeaker Mounting

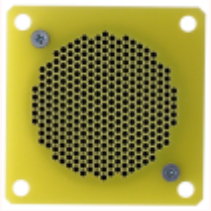
By default, the loudspeaker is panel-mounted. Since half of 2010, every speaker is connected by cable. It allows installation of amplifier module. You can also slide the loudspeaker out of its panel bed and place separately, if necessary. **See safety notice in this case, see bellow!**

Caution

- In that case seal the loudspeaker properly to eliminate acoustic short-circuit between the front and back loudspeaker sides (the grid may in no case overreach the loudspeaker area to avoid acoustic short-circuit.

Safety

- Keep the minimum electric isolation between the panel and the loudspeaker of 1500 V
- Keep the minimum isolation distance between the panel and the loudspeaker of 1.5 mm.
- 40 mm speaker is equipped with a rubber sealing. Do'nt remove it!
- 50 mm speaker must be placed at insulating (non-metallic) surface. Otherwise, ask manufacturer for an external panel, as shown at right (it is n ot included)



Caution

- You are not recommended to install the microphone and loudspeaker on relatively distant places in the lift car (e.g. one on the ceiling and the other on the wall) because the users should easily locate the loudspeaker (its grid or perforation) and expect to find the microphone close to it.

Indicator Mounting

You can choose any of the following three **ST** status indication options:

1. Use the backlit pictograms integrated in the lift cabin control panel.
2. Add optional light guides to the existing **ST** LEDs to conduct light to two panel holes.

3. Connect two optional LEDs to **ST** with a cable.

Safety

- If the LEDs are cable connected, make sure that the electric isolation between the panel and the loudspeaker is 1,500 V at least.

- Make sure that the isolation distance between the panel and the loudspeaker is 1.5 mm at least.
- You are prohibited to use standard metal LED holders (for an example see the figure to the right).

Note

- Make sure that your way of indication complies with the applicable legal regulations. Indicators, however, are unnecessary for **ST** operation (communication).

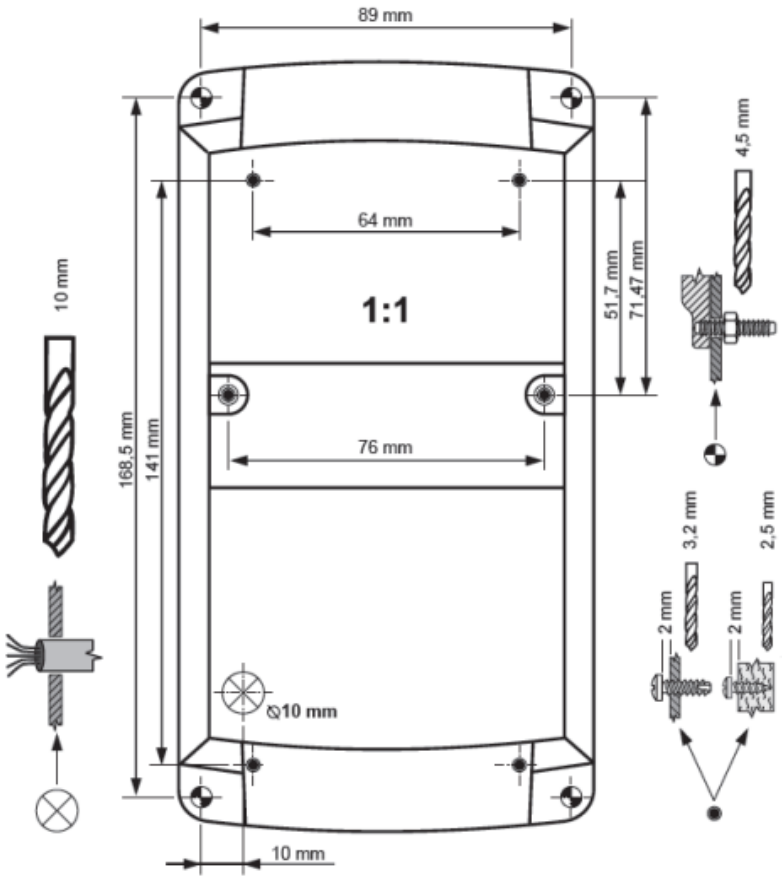
2.4 Mounting – Compact version

Safety

- Installing the telephone line cable, ensure that the user cannot touch the conductors and is protected against an electrical accident by a minimum isolation distance of 1.5 mm, or an isolation barrier of a minimum break--down voltage of 1,500.

Prior to Mounting

Drill holes into the lift cabin wall as shown in the drawing or as printed 1:1 on the product package. The larger hole is intended for cable passage. Round the hole edges to avoid cable damage!

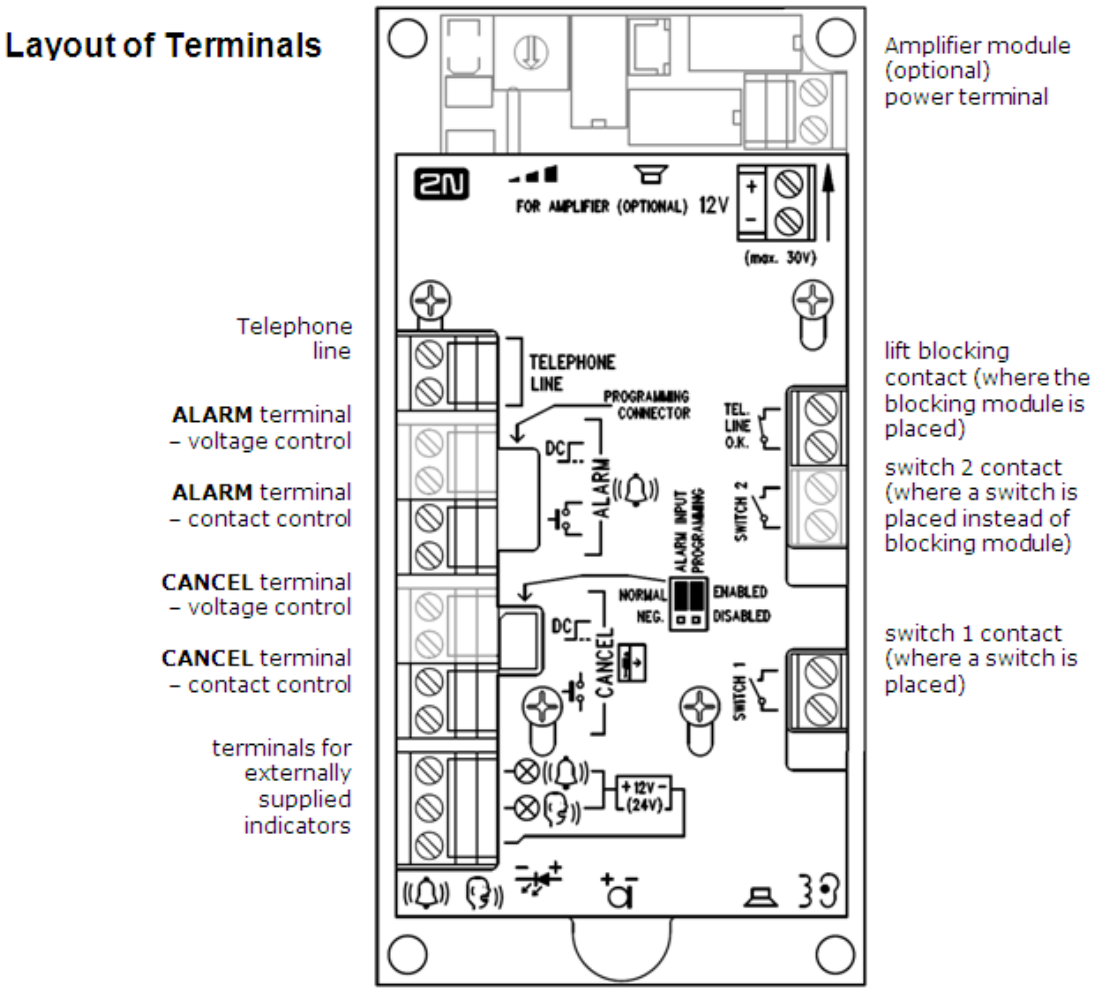


Note: The two 2.5 mm large holes in the window area are used where the mounting panel rear is inaccessible. The 2.5 mm diameter is suitable for all wall mounting options using plywood, chipboard, laminated plastic etc. with the aid of the screws included. For front metal panel wall mounting drill M4 threaded holes.
The product mounting procedure may not be commenced until all electrical installations have been completed, refer to **Mounting Completion.**

2.5 Installation – Universal version

Layout of Terminals, Jumpers and Connectors

You can see on the picture below layout of terminals.


Layout of Terminals
Amplifier module (optional) power terminal
Telephone line
ALARM terminal – voltage control
ALARM terminal – contact control
CANCEL terminal – voltage control
CANCEL terminal – contact control
terminals for externally supplied indicators
lift blocking contact (where the blocking module is placed)
switch 2 contact (where a switch is placed instead of blocking module)
switch 1 contact (where a switch is placed)
FOR AMPLIFIER (OPTIONAL) 12V
(max. 30V)
TELEPHONE LINE
PROGRAMMING CONNECTOR
TEL. LINE O.K.
SWITCH 2
ALARM INPUT PROGRAMMING
NORMAL NEG.
ENABLED
DISABLED
SWITCH 1
+ 12V - (24V)

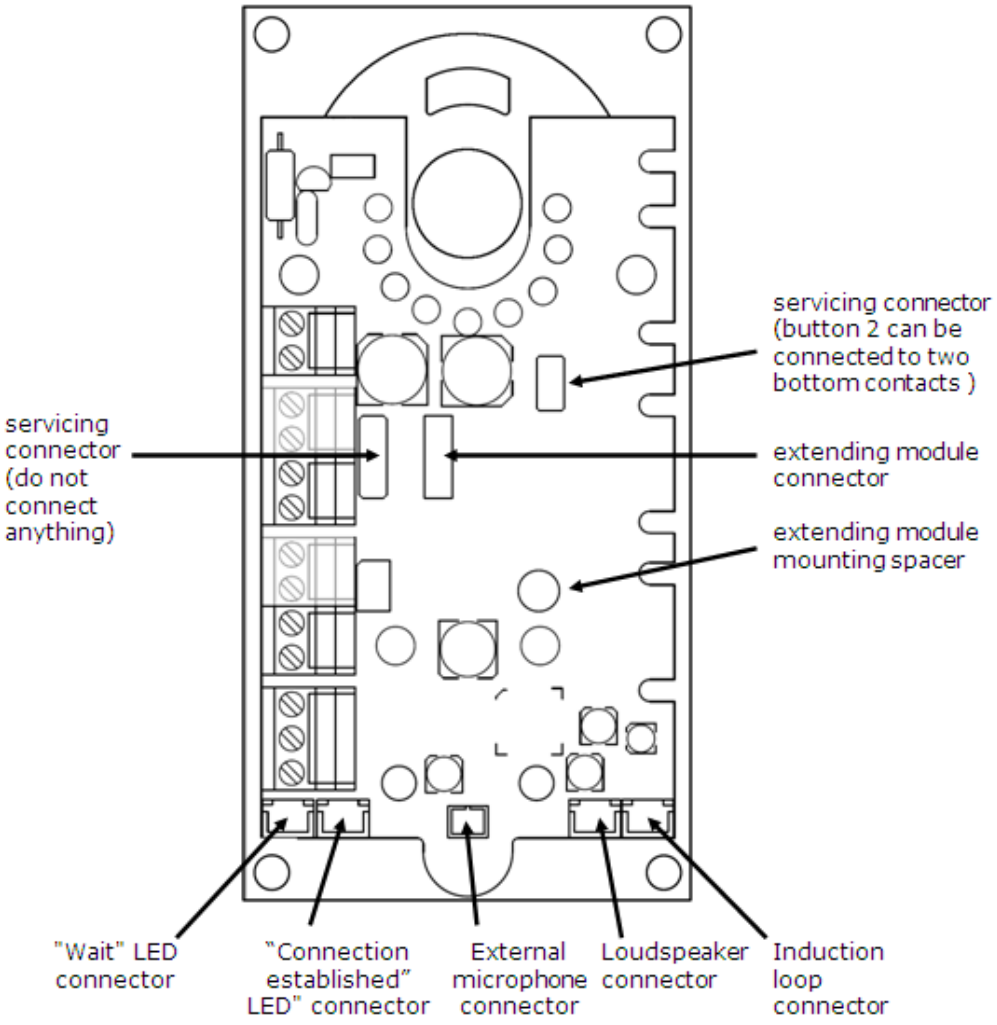
Note

- The terminals are accessible without removing the cover.

Jumper Settings

Left-hand jumper (ALARM INPUT)		**Right-hand jumper** (PROGRAMMING)	
inverted ALARM input		disabled PROGRAMMING	
up (NORMAL)	**closing contact or voltage connection activation**	**up** (ENABLED)	**enabled**
down(NEG.)	breaking contact or voltage disconnection activation	down(DISABLED)	disabled

Connectors accessible after cover removal


servicing connector (button 2 can be connected to two bottom contacts)
servicing connector (do not connect anything)
extending module connector
extending module mounting spacer
"Wait" LED connector
"Connection established" LED" connector
External microphone connector
Loudspeaker connector
Induction loop connector

Tip

- To access connectors at the bottom edge of the board without cover removal, just loosen cover screws gently and slide the cover upward. Applies to HW version 7 and higher, when amplifier module is not mounted.

Description of terminals

<table>
<tr><td colspan="2">Telephone line</td><td colspan="2">Polarity does not matter. Can be connected directly to a private telephone network (PSTN), PBX or GSM gateway line.
CAUTION – more than one unit may not be connected to a single line!!!</td></tr>
<tr><td rowspan="2">ALARM</td><td>voltage control *)</td><td>12 – 24V DC voltage,any polarity</td><td rowspan="2">Emergency call activation</td></tr>
<tr><td>contact control</td><td>switching or breaking contact</td></tr>
<tr><td rowspan="2">CANCEL</td><td>voltage control *)</td><td>12 – 24V DC voltage,any polarity</td><td rowspan="2">Emergency call deactivation</td></tr>
<tr><td>contact control</td><td>switching or breaking contact</td></tr>
<tr><td colspan="2">Indicator connecting terminals *)</td><td colspan="2">Indicators (backlit pictograms), max. 24 V / 2× 200 mA, supplied from an external power supply, the connection layout must be maintained.</td></tr>
<tr><td colspan="2">External microphone connector</td><td colspan="2">External microphone is available on request. Switching between onboard and external microphone is automatic (external microphone is detected). ***)</td></tr>
<tr><td colspan="2">External loudspeaker connector</td><td colspan="2">For a request, loudspeaker can be equpped with cable. In this case, it is connected here.</td></tr>
<tr><td colspan="2">Inductionloopconnector</td><td colspan="2">The induction loop is not a part of standard packing.
It has to be placed behind a non-metal, non-magnetic cover in the control panel because the magnetic field of the induction loop cannot go through the metal lift control panel.
Notes:
▪ If loudspeaker is placed behind a non-metal, non-magnetic cover, it works as the induction loop too.
▪ Output is short circuit resistant. Output power is limited by resistor.</td></tr>
<tr><td colspan="2">Lift blocking contact *) **)</td><td colspan="2">In the event of telephone line failure, the contact opens, the lift goes to the nearest floor and the door opens. The lift should not go on until the telephone line function is restored.</td></tr>
<tr><td colspan="2">Switch 2 contact *) **)</td><td colspan="2" rowspan="2">The switches can be used as needed and are remotely controlled using a digital password (DTMF). The switches are not designed for 230V!</td></tr>
<tr><td colspan="2">Switch 1 contact *) **)</td></tr>
</table>

*) These terminals are safely electrically isolated from the telephone line.
**) Extending module terminals. The lift blocking module can be mounted only if switch 2 is absent.
***) Applies to boards of version 5 and higher. These boards has both onboard microphone and the connector for external one.

ST Telephone Line Connection

The **ST** works regardless of polarity or line parameters in a wide range (see Technical Parameters). The line is connected to the LINE terminals. A great advantage of the **ST** i s that it needs no other power supply for its operation. Details on the **ST** connection to PSTN, PBX and GSM gateway lines are available in the "**ST Connecting Options"** secti on.

ALARM Button Connection – Button control

Safety

- Make sure that the button is safe – the isolation distance must be 1.5 mm at least and the break-down voltage may not fall below 1500V. The button contacts may not be connected to any other circuits. In case the above mentioned conditions cannot be met, use voltage control.

- Connect the button contacts to the **ALARM** terminal, leaving it in the low position.
- The button can have both the switching and breaking contacts. With the breaking contact, switch the ALARM INPUT jumper into position NEG.

ALARM Button Connection – Voltage control

Tip

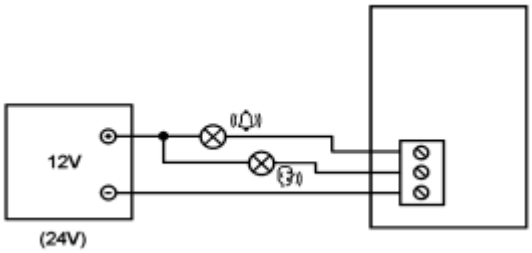
- 12 to 24V DC voltage of any polarity can be applied. However, the source must be backed-up in case of power outage.

- Slide the ALARM terminal out and put it in the upper position to ensure the required isolation against the telephone line circuits.
- Activation is controlled by voltage connection/disconnection. If voltage disconnection activation is used, switch the ALARM INPUT jumper into position NEG.

Indicator Connection

Basic connection

In this type of connection, any indication elements can be used (backlit pictograms, e.g.). An external power supply provides a sufficient indicator intensity.



Requirements

- a 12 – 24 V power supply (backed up if necessary)
- steady state current of 200 mA maximum (incandescent lamps may be connected)
- Both indicators must be connected!

Warning

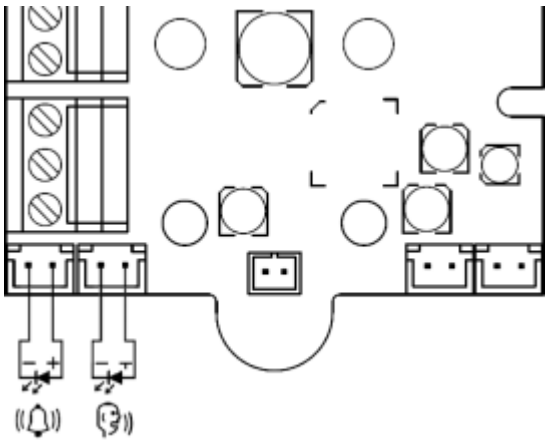
- Remember to keep the correct power supply polarity!

LEDs mounted onto the ST electronics board

Nothing is connected in this case.
For this purpose, use light guides to conduct light to two panel holes (refer to Section Mounting of Panel with **ST** Electronics). These light guides are not included in the standard accessories.

Cable-connected LEDs (optional accessories

Cable-connected LEDs can be used where backlit pictograms are unavailable. The LEDs are not included in the standard accessories, they are available as a separate delivery or as part of a client-defined solution. The LEDs have the diameter of 5 mm and a very high luminance.



Requirements

- Keep the LED polarity (see the cover printing)
- Keep colors: request confirmation – yellow, connection confirmation – green

Note

- The PCB LED is not on in this type of connection.

CANCEL Input Connection (Door Control, Optional)

Caution

- The door switch or door opening signal must indicate an open door only if both the internal and external lift doors are open and the lift car can be left safely.

Note

- If the CANCEL input is used, be sure to program parameter 914 for a period longer than the maximum lift running time (i.e. while the door is closed). If parameter 914 is set at 0, it is useless to connect the CANCEL input.

Switch control

Safety

- The CANCEL input is connected with the telephone line circuits. Therefore, the air distance between the switch and the other lift parts must be 1.5 mm at least and the break-down voltage may not be less than 1500V. The switch contacts may not be connected to any other circuits. In case the above mentioned conditions cannot be met, use the **voltage control.**

- Connect the switch to the **CANCEL** terminal, leaving it in the low position.
- By default, the **ST** is set for a switch that is closed when the door is open. If the switch is closed when the door is closed, select parameter 916 – see Programming.

Voltage control

DC voltage of any polarity ranging between 12 and 24V can be applied.

- Slide the CANCEL terminal out and switch it in the upper position to ensure the required isolation against the telephone line circuits.
- In the event of voltage disconnection activation select parameter 916 – see Programming.
- By default, the **ST** is ready to accept a sensor that applies voltage when the door is open. If it gives voltage when the door is closed, select parameter 916 – see Programming.

Caution

- If voltage presence indicates that the door is **closed**, this source must be backed-up against power outage.

Induction Loop Connection

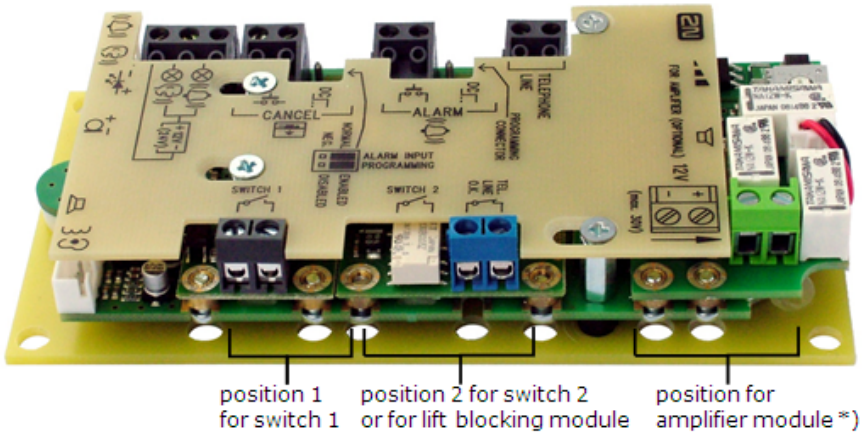
The regulations that apply to communicator installations may require a mandatory loop for persons with defective hearing in the lift cabin. In that case, connect the loop to the connector with any polarity as shown in the drawing. The loop including a 1 m long cable can be part of the delivery if agreed so in advance.

Requirements

- The induction loop has to be placed behind a non-metal, non-magnetic cover in the control panel because the magnetic field of the induction loop cannot go through the metal lift control panel.
- The induction loop has to be labelled with an appropriate pictogram (ear) and placed according to applicable standards.

Installation of Extending Modules

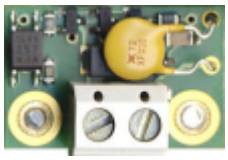
Extending Modules Location



*) Amplifier module cam be mounted directly to the main board (inserted into margin slots) as shown above, if mainboard HW version is 7 or higher (model 2011).

Switch Installation

Universal switch module (order No. **913648E**) can be installed (before **ST** mounting!) into position 1 or 2 without removing the **ST** cover. Having inserted the module into the motherboard margin slots, tighten the two screws (through the panel cutouts).



Caution

- Be sure to tighten **both** the screws!

Warnings

- In reality, the "Contact" is a semiconductor switch of the ON-state resistance of about 0.5 Ω. Switching voltage values lower than 9V may bring troubles – the switch function cannot be, e.g., tested using a common ohmmeter because it is used for small voltage only.
- The maximum switched current is 1 A. The switch is protected with a resettable fuse against higher current values
- The allowed voltage is from 9 to 24 V, both DC and AC. The switch is equipped with overvoltage protection against voltage peaks.
- The switch "contact" is safely electrically isolated from the telephone line, yet designed for weak-current applications only. It cannot be used for mains voltage of 230 V or 120 V.

Lift blocking module Installation

Lift blocking module (order No. **913649E**) can be installed (before **ST** mounting!) into position 2 without removing the **ST** cover. Having inserted the module into the motherboard margin slots, tighten the two screws (holes in the panel).

Caution

- Be sure to tighten **both** the screws!

Module function

The contact is closed when the telephone line is OK.

Cautions

- The module responds to the telephone line disconnection with an up to 2 minutes' delay.
- The maximum switched current is 1 A. The allowed voltage value is up to 24 V. It is a mechanical contact (relay)).

Warning

- The module "contact" is safely electrically isolated from the telephone line, yet designed for weak-current applications only. It cannot be used for mains voltage of 230V or 120V.

Extending module Installation

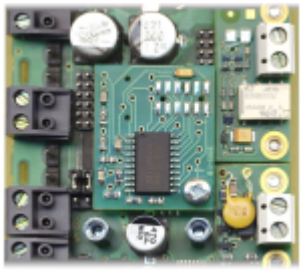
The extending module (Part No. 913647E) allows you to record and play your own voice messages (the lift cabin address, e.g.). Typically, it is integrated in **ST** as Part No. 913641 or 913643. But it can also be mounted additionally as described below.

Note

- Before installing an extending module produced earlier, check it for **compatibility** with your **ST**! Modules No.913402E are very similar, but are equipped with a diagnostic connector on the upper side. They are not fully software-compatible and, if installed, result in the **ST** error.

Installation steps

1. Loosen 4 screws and remove the electronics cover.
2. Put the module on the connector in such a way that you can see the column thread through the module corner hole.
3. Fit the module with the attached M3 screw.
4. Replace the cover, screwing it into position.



Amplifier Module Installation

Please follow the manual enclosed to amplifier module.

2.6 Installation – Compact Version

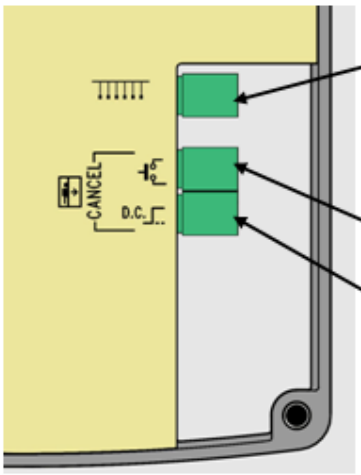
Caution

- Be sure to connect the wires before wall mounting. The connectors are separable – remove them, connect the wires, tighten the screws and replace the connectors.

Safety Precautions

- The product is connected to a telephone line where life-endangering voltage may occur, during storms in particular. Be sure to install the ALARM button in such a manner that the user cannot get in touch with the wires and can be protected against electrical accident. The minimum isolation distance must be 1.5 mm and/or the minimum breakdown voltage must be 1,500 V – for the used button too!
- Make sure that the cables cannot get in contact with sharp edges during installation to avoid insulation damage.
- Check after installation that the isolation distance of 1.5 mm is kept everywhere. Use an insulation meter if possible.
- The manufacturer shall not be held liable for any installations made in conflict with the User Manual or the Appendix thereto.

Terminal Description (elderly HW)



Telephone line. Polarity does not matter. Connect the line directly to the PSTN, or a PBX or GSM gateway line.

CAUTION – it is impossible to connect multiple devices to a single line!!!

CANCEL terminal in contact-control position (closing or opening contact).

CANCEL terminal in voltage-control position (12 – 24V DC voltage, any polarity).

Note: Use the CANCEL terminal to disable emergency calls.

Terminal Description (newer HW)

Tip

- The above mentioned safety precautions need not be observed in case your ST unit is connected to a 2N® EasyGate GSM gateway installed near the communicator.

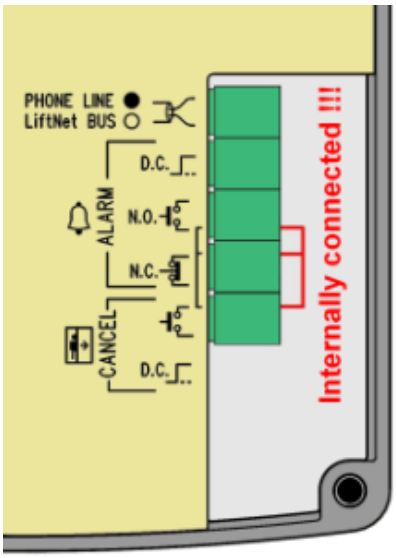
Terminals

Telephone line / **LN** bus		Refer to **ST** or **LN** User Manual	
ALARM terminals	**DC** = voltage control *)	5 – 24Vdc, any polarity	Emergency call activation
	N.O. = N/O contact	normally open contact	
	N.C. = N/C contact	Normally closed contact **WARNING!** If unused, the contact should not be opened!	
CANCEL terminal	voltage control *)	5 – 24Vdc, any polarity **)	Emergency call deactivation upon door opening
	contact control	any contact **)	

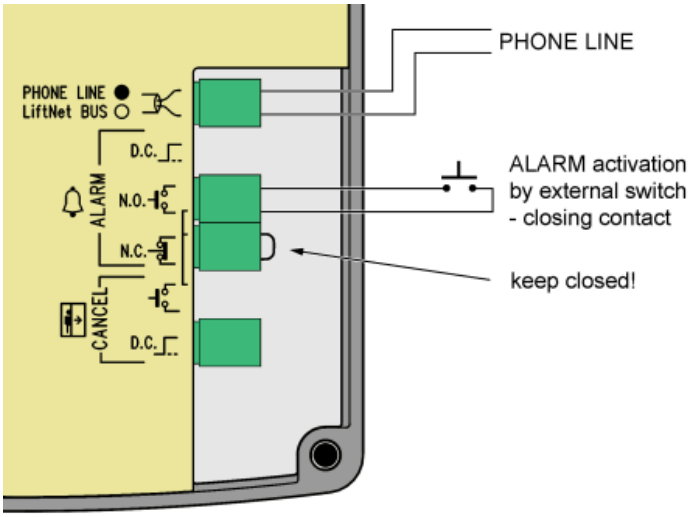
*) For safety reasons, these terminals are electrically isolated from the telephone line.
***) You need not do anything to activate *ALARM** if you keep the factory settings. For deactivation, voltage application or contact closing is necessary. To change the settings use parameter 916 for **ST** and the rotary switch for **LN**.

Accident Hazard

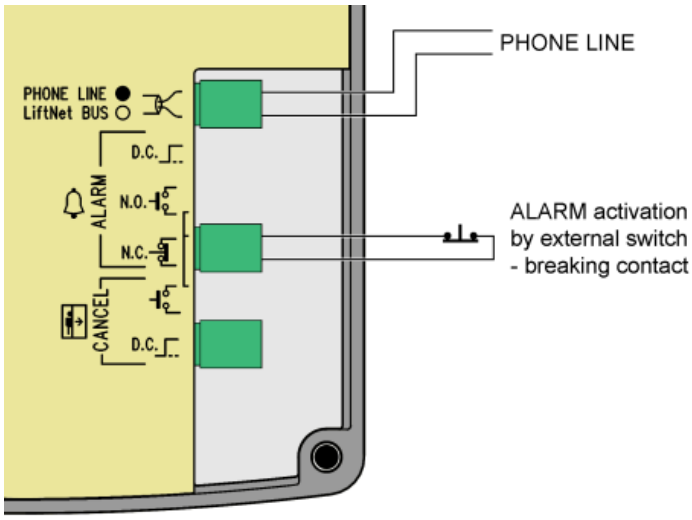
- Make sure that the button is safe, i.e. that the minimum isolation distance is 1.5 mm and the minimum breakdown voltage value is 1,500 V. The button contacts may not be connected to any other circuits. If any of the above conditions cannot be met, use voltage control.
- You can use an N/O or N/C button or both.
- Refer to the rear cover for internally connected terminals.



ALARM Button Connection with N/O Contact

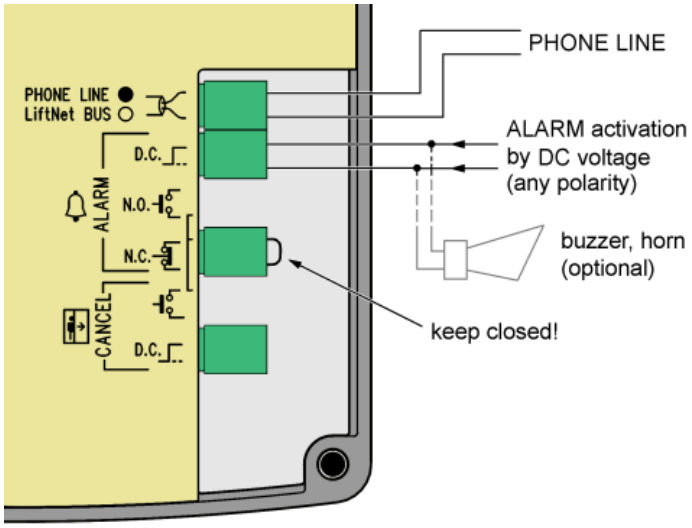


ALARM Button Connection with N/C Contact



Notes

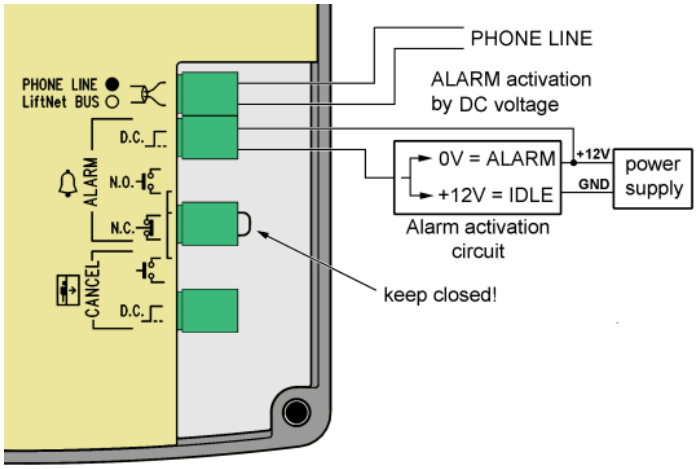
- The ALARM button mounted on the cover is still functional when an external button is connected.



Voltage Activation

Notes

- 5 - 24 dc voltage of any polarity can be used. Make sure that the power supply is backed up properly.
- Where activation from multiple places is necessary, voltage control can be combined with buttons.
- A buzzer or horn can be connected in parallel, see the figure to the right.



Inversion Voltage Control

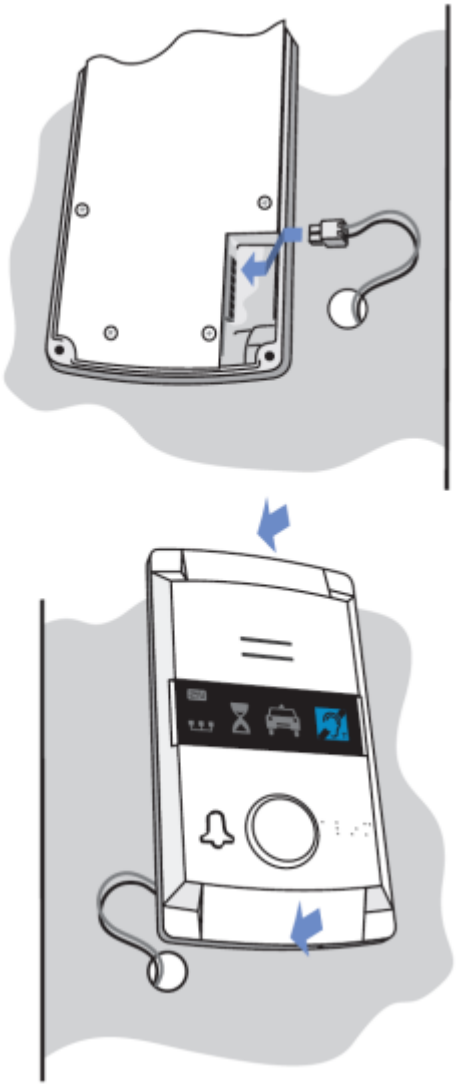
The figure to the right shows a configuration where voltage is present and activation is caused by non-presence of voltage.

Warning

It is impossible to connect multiple devices to a single line!!!

Tip

- The Compact version is very easy to install because the ALARM button, backlit picrograms and induction loop are part of the product. All you have to do is connect a telephone line. The CANCEL input connection is optional.



Telephone Line Connection

ST works regardless of polarity and/or line parameters in a wide range (see the Technical Parameters section). It is connected via the LINE terminals. A great advantage is that **ST** requires no additional power supply for operation. For details on **ST** connection to PSTN, PBX and GSM gateway lines refer to the **ST** Connecting Options section.

CANCEL Input Connection (Door Contact, Optional)

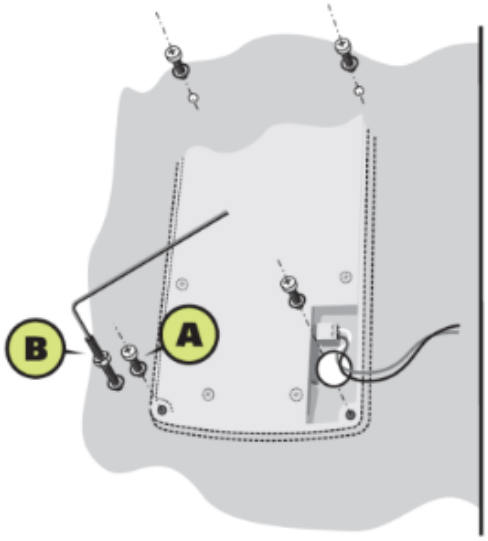
The connection is the same as with the Universal version. Follow the instructions included in the Installation – universal version section, The only difference is that the terminal is in the upper position for contact control and in the low position for voltage control as printed on the rear cover at the terminals.

Induction Loop Connection

It is unnecessary to install the induction loop. It is integrated in the product, located to the right in the window area and labelled with the prescribed blue pictogram.

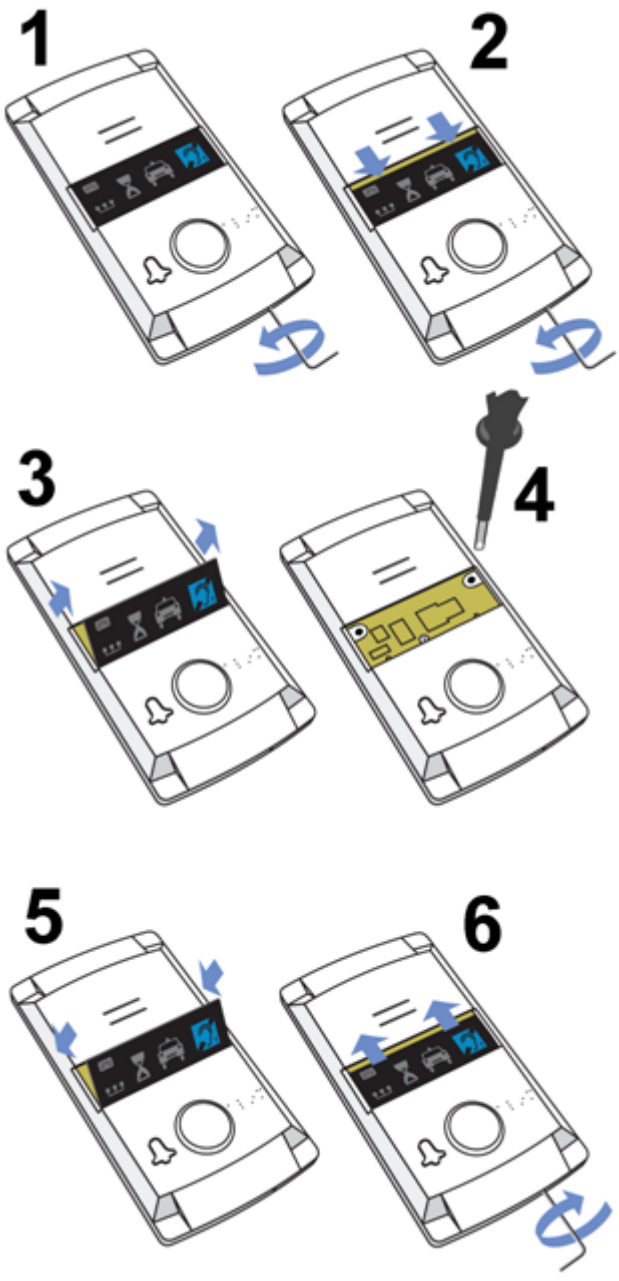
Mounting Completion

Having connected the wires, you can complete the **ST** wall mounting. The mounting is easier if you can access the cabin wall from the outside. In this case, the screws are inaccessible from the cabin and **ST** cannot be stolen. If the cabin wall is accessible from the outside, follow the instructions in item a) or b). If not, follow item c).



a. If the cabin wall is thin (stainless steel sheet), use four 8 mm long M4 screws and fan washers from the accessories. Apply **ST** on the pre-drilled place and screw the M4 screws including the washers from the rear panel side.
b. If the cabin wall is thick (up to 20 mm – laminated chipboard, e.g.), use four headless 30 mm long M4 screws from the accessories. First screw them into the **ST** back holes and tighten. Then get the set through the pre-drilled holes and apply the fan washers and nuts from the rear.
c. If the cabin wall is inaccessible from the rear, follow instructions on the next page. **TIP:** If you have pre-drilled corner holes, find four headless M4 screws of the length of 30 mm in the package. Drive the screws into the holes on the rear side of the audio unit and tighten as mentioned in item b) above. Though unprovided with nuts, the screws fix the product reliably, preventing it from sliding or turning.

Mounting Completion – withour rear access



1. Insert the hex wrench (included in the delivery) in the bottom unit edge hole; turn **left** about 10 times until it puts up resistance.
2. The window slides down by itself or with little assistance, showing its upper brim.
3. Tilt the window forwards and remove.
4. Now you have access to two holes in the window corners. Put ST (including the connected wires) on the pre-drilled lift cabin wall. Drive and tighten the included screws for plywood, chipboard, laminated plastic etc. wall mounting or short M4 screws with fan-shaped washers (intended for metal plate mounting with pre-drilled M4 threaded holes).

5. Replace the window.
6. Insert the hex wrench (included in the delivery) in the bottom unit edge hole, turn **right** about 10 times until the window slides under the panel edge and tighten applying light force.

2.7 ST Connecting Options

Direct PSTN Connection

Advantages and disadvantages

This is the most reliable and simplest connecting option. The costs include acquisition costs plus a line installation fee, yet the **ST** operation is relatively cheap (monthly fee).

Cautions

- The line must be dedicated to **ST** only, serving no other devices.
- The line may not be serial or group line.

Notes

- You are not recommended to use the telephone set offered for lease while arranging the line.
- The telephone socket and associated cabling are the network provider's property and may not be tampered with.
- Report the **ST** installation and submit compliance certification upon request.
- Your follow-up cabling must be in conformity with the relevant safety regulations.
- You are recommended to secure your line against piracy,e. g. use a telephone lock.

GSM Gateway Connection

Advantages and disadvantages

This is a rather costly solution for places where no telephone line is available.

Cautions

- Back up the GSM gateway reliably in case of power outage.
- With a pre-paid SIM card, ensure credit monitoring and on-time charging.

Tips

- Verify the signal coverage and intensity in the place before selecting your GSM provider.
- Choose the optimum location for your antenna.
- Use an external directional antenna for places with a bad signal quality.
- Ensure that your GSM gateway function will go on working upon power failure without the need to enter the PIN.
- Safeguard the GSM gateway SIM card against misappropriation.

PBX Connection

Advantages and disadvantages

This is the cheapest connecting option wherever a PBX and an unoccupied PBX line are available. Where the **ST** is connected to a non-stop well-trained service personnel only, its operation costs are zero.

Caution

- Make sure that your PBX is protected against power outage. In the event of power outage, non-backed-up PBXs switch over some of their lines directly to CO lines and, in that case, the **ST** may call another subscriber if a prefix is used! For a smart solution see the Tips below.

For the **ST** to call outside the building (i.e. via PSTN):

- The line to be used must have the relevant call barring status (use a common telephone and try to call "outside" for check)
- While programming, add prefixes for PSTN seizure (typically a zero), or select a direct PSTN line seizure.
- To enable dispatcher center – **ST** calling, identify the line (extension) to be used and how to reach it from the outside (dial-in, DISA, operator), and select the appropriate PBX configuration (allowing to call the **ST** even in the night without an operator).
- Select the appropriate call barring status for the extension to be used if any of the pre-programmed numbers is a mobile (GSM) one.
- Agree with the PBX owner on operation costs (**ST** outgoing calls are at the owner's account).

Tips

- The operational costs can be solved by the "green line" (prefix 0800) calls.
- The so-called automatic CO line seizure (without dial-in) is a practical solution, which, in the case of **ST** switchover to a PSTN line due to power outage, makes the **ST** always call the right number.

3. Configuration
2N® SingleTalk

This section describes configuration of the product **2N® SingleTalk**.
Here is what you can find in the section:

- 3.1 2N® SingleTalk Programming
- 3.2 Review of Programming Functions

3.1 2N® SingleTalk Programming

Before You Start Programming

- Make sure that programming is not restricted (PROGRAMMING jumper) and that your telephone supports tone dialing.
- Use the pre-prepared form, which is also a clear table of basic functions, and fill in all values to be changed.
- If your **ST** is not brand new, make sure that you have a correct service password and, if you are not entirely sure of how **ST** has been programmed, execute full initialisation (Warning! The service password is also initialised!).

Entering Programming Mode

The programming mode can only be entered during an incoming call (calling from a phone to the **ST**). For access, enter the password in the format:

*** service password ***

(remember to enter an asterisk before and after the password!). If the password is correct and programming is allowed (jumper), **ST** reports:

"You have entered the programming menu"

and a help menu is displayed according to the context. The default password is **12345** and you are recommended to change it to protect your equipment against unauthorized access.

Tip

- If you forget the service password, contact the manufacturer in order not to lose your data. You have a 5-second (or as selected from 1 to 9 seconds) password-entering timeout per character; if you do not manage to enter a digit within this timeout, **ST** rejects the digits dialled by you – in that case, re-enter the password or function.

Programming

Once entering the programming mode, you can change any programmable value(s) in any order. The procedure is simple – first enter the parameter number, then the function value. An asterisk is used as the separator or "Enter". The general function format is thus as follows:

parameter number * value * .

The parameter number consists of three digits (see later). After the number and an asterisk are entered, the **ST** announces the parameter number/name, value and allowed range. After the value and another asterisk are entered, the **ST** reports "Value saved", or "Invalid value" in case the value exceeds the allowed limit.

Tip

- **To check programmed values**: enter parameter number and * , listen the parameter value and press # for return to the main menu.

Caution

- Unfortunately, some telephone sets become "mute" for a second after sending the DTMF signal. Try to use another telephone in this case.

Programming Error

- If you make an error while entering a number (whether a wrong function number or value) and you recognise it before entering an asterisk, push # to cancel the number and enter a new one.
- If the **ST** rejects the selected parameter number or value, the programming procedure can continue – the function number must be re-entered even if only the value was wrong.
- If you program a false value and it gets stored, you can re-enter the value of course.

Programming Termination

- Having stored all values you needed to change, terminate programming by pressing # . The **ST** sends a hang-up signal and hangs up.
- If you do not use # , the **ST** hangs up later without influencing your storage (the values are stored immediately upon entering).
- In doubts, make sure that the programmed **ST** behaves according to your assumptions.
- Keep the filled-in programming form on a safe place.

How to Record a Message

(for models 913641, 913643 and 913645, or 913640 and 913642 with extending module 913647 only)
A message can only be recorded **in the programming mode** (see the respective chapter) and if the voice recording module is present. It is protected with a password and, optionally, with a programming barring jumper.
You can check the message during an incoming call (not during programming). To play back the message, press 3 .

Caution

- To play recorded message automatically during the outgoing call, you must change parameter 975.
- If a voice recording module is installed and you have not recorded a message of your own, the test record is replayed. This record contains the "Wait please" message but without any language selection!

Steps

1. Enter the programming mode: # service password # .
2. Enter the message recording command: # 972 # service password # .
3. Listen to the permanent tone (up to 15 s). Wait until it stops.
4. Now, a new message is being recorded. The maximum time is 30 s.
5. If the message is shorter, terminate recording by pressing a digit (DTMF) on the phone.
6. Having completed recording, **ST** hangs up.

Notes

- The maximum message length is 30 seconds. You are recommended to prepare the message text in advance and check its length. Remember to identify the lift and keep in mind that the lift may be used by foreigners, too, e.g. at hotels. Articulate distinctly and, if the message is rather long, monitor the time in order not to be surprised by the message end.
- Message quality: depends on the speaker (you are recommended to hire a professional speaker for representative purposes), telephone set (do not use handsfree or obsolete carbon-insert apparatuses), surrounding noise and connection quality (the best solution is to record the message in advance on the PBX).
- Message check: after the message is recorded, the **ST** quits programming automatically and hangs up because it expects you to check the action. Call the **ST** again and play the message back (command 3).

Setting Acoustic Parameters

- The **ST** automatic handsfree mode works as follows: if there is silence on both sides, the sound channel is muted; if a threshold sound level is exceeded, the loudspeaker or the microphone goes on depending on which party starts talking, or is talking more loudly.
- The optimum acoustic parameters are set by default. You are not recommended to change them unless under exceptional circumstances. For a change, use parameters 931 through 938.

Switch programming

- Each of the 3 switches has its predefined password (00, 11 and 22) according to the table. If you use a new password, do not forget to remove the old one
- Up to 10 various passwords can be programmed for each switch. Thanks to it, different persons can use different passwords and all you have to do to "block" one person later , is to remove the person's password and keep the other passwords valid.
- All passwords are checked during programming, i.e. it is forbidden to enter one password twice.
- If you wish to use a faster switch control method (a password without #), be careful while entering passwords of variable lengths: if a shorter password is identical with the beginning of a longer one, you cannot control the switch with the longer one. Moreover, if you use Automatic dialing with confirmation, your passwords may not start with 1 to 5.

Communication Equipment – Abbrev. Programming Form

Function Number and Name	Value Range	Initialization Value	Value Programmed by You	Notes, Explanations
011 – ALARM button memory 1	up to 16 digits	empty		To delete the memory, enter a "zero length number", e.g. 0 1 1 * *
012 – ALARM button memory 2	up to 16 digits	empty		Storing characters *, # and inter-digit space is executed additionally using function xx7.
013 – ALARM button memory 3	up to 16 digits	empty		Memories 013–016 can be used only if the voice recording module is present!
014 – ALARM button memory 4	up to 16 digits	empty		**Caution:** The total count of attempts (number of filled memories multiplied by parameter 018) must be less than or equal to 15.
015 – ALARM button memory 5	up to 16 digits	empty		
016 – ALARM button memory 6	up to 16 digits	empty		
018 – count of automatic dialing cycles for the ALARM button	0–9	3 cycles		0 = automatic dialing disable (the first number is dialed once only)
551 – checking call memory 1	up to 16 digits	empty		Storing characters *, # and inter-digit pause is executed additionally using function xx7. Memories 553–556 can be used only if the voice recording module is present!
552 – checking call memory 2	up to 16 digits	empty		
553 – checking call memory 3	up to 16 digits	empty		
554 – checking call memory 4	up to 16 digits	empty		
555 – checking call memory 5	up to 16 digits	empty		
556 – checking call memory 6	up to 16 digits	empty		
558 – count of automatic dialing cycles for the checking call	0–9	3 cycles		0 = automatic dialing disable (the first number is dialed once only)
901 – dialing type	0 or 1	0 = tone		0 = tone dialing 1 = pulse dialing
902 – dialing start time (after pick-up)	5 to 99 corresponds to 0.5 to 9.9 s	10 = 1 second		Time between pick-up and dialing start.
904 – automatic dialing type	0–4	1		0 = disabled for all buttons 1 = loud dialing with confirmation 2 = silent with confirmation 3, 4 = loud without confirmation
911 – count of rings until incoming call answering	01–99	2		Defines the moment of pick-up during ringing.
912 – maximum call duration	1 to 99 corresponds to 10 to 990 s	12 = 2 minutes		06 = 1 minute 30 = 5 minutes 99 = 16.5 minutes
913 – seizure timeout (for automatic dialing)	1–99 corresponds to 10 to 990 s	6 = 60 seconds change!		The maximum time, during which the dispatcher has to answer and send confirmation, otherwise the **ST** hangs up and dials the following number.
914 – delayed calling	0–9 (count of cycles)	0 = no delay change!		1 cycle lasts 11 seconds. Zero = no delay.

Function Number and Name	Value Range	Initialization Value	Value Programmed by You	Notes, Explanations
915 – hang-up timeout between calls	5–99 corresponds to 0.5 to 9.9 s	40 = 4 s		
916 – CANCEL input inversion	0 or 1	0		0 = contact closed (or voltage present) at open door 1= contact closed (or voltage present) at closed door.
931 – microphone trigger level	0–3	2		0 = maximum microphone sensitivity
932 – automatic response speed	0–3	2		3 = maximum response speed
933 – receiving volume	0–15	7		15 = maximum receiving volume
934 – transmitting volume	0–15	7		15 = maximum transmitting volume
935 – message volume	0–15	7		15 = maximum message volume
936 – beep volume	0–12	12		12 = maximum tone volume
937 – DTMF hearing volume	0–3	3		3 = max. DTMF hearing volume
938 – loudspeaker volume	0–15	7		15 = max. loudspeaker volume
954 – count of ringing periods	1–99	10		
962 – min. button pressing time	01–99	1 = 0.1 s change		Applies to all buttons.
971 – count of message repetitions	0–9	3 messages		The first message starts immediately after the dialing is terminated. You cannot talk during messages!
972 – message recording – maximum length of 30 seconds	Service password	Message text:		The text is recommended to include the lift address.
974 – lift identification	16 digits	–		Enables lift identification
975 – message options	2 digits	55		**1st digit** = type of message repeated after dialing. **2nd digit** = message type after confirmation. Both digits has these options: 1 = user recrded message 2 = identification (974) spelled 3 = combination of options 1+2 4 = identification (974) by DTMF 5 = message selected by par. 977 (after confirmation par. 976) 6 = combination of options 5+2 7 = confirming tone (after confirmation only)
976 – call end message language selection	0–9	1		0 = ♪♪ 1 = English 2, 3 = ♪♪ 4 = German 5 - 7 = ♪♪ 8 = Portuguese 9 = Dutch 10...99 = silence Note: see **Survey of messages** in chapter 4.2
977 – outgoing call message selection	0–9	1		
981 – checking call	0= off 1 = on	0		You can set for parameter 981: 1 = on, first call in 1 minute 2 = on, first call in 2 hours 3 = on, first call in 3 days
991 – service password	up to 16 digits	12345		

3.2 Review of Programming Functions

You can see on the table below all programming functions.

Function Number and Name		Value Range	Initialization Value	Notes, Explanations
011 ... 016	ALARM button memories	up to 16 digits	Empty	To delete the memory enter a "zero length number", e.g. 0 1 1 * * Digits may be entered only, "Flash" and pause cannot be entered
021 ... 026	button 2 memories	up to 16 digits	Empty	**Memories 0x3–0x6 can be used only if the voice recording module is present!** **Caution:** total count of attempts (number of filled memories multiplied by parameter 018 or 028) must be less than or equal to 15.
017 **027**	Entering of [*], [#] and inter-digit space for button ALARM or 2	1 = * 2 = # 3 = space		How to enter: enter the selected charakter (1–3), then the button memory number (1–6) and then target position (01 to 16)
018 **028**	Count of cycles of automatic dialing for buttons ALARM, 2, 3, 4	0–9	3 cycles	0 = automatic dialing disable (the first digit is dialed once only). If just one memory is filled, then the difference between values 0 and 1 is that call control commands (1–5) cannot be used if parameter 0x8 has value 0; such numbers are regarded as the beginning of a switch password.
019 **029**	Incoming / outgoing function passwords for buttons ALARM and 2	up to 16 digits	empty	Incoming / outgoing function is not intended for lifts. See 2N HELIOS manual for description.
551	Checking call memory 1	up to 16 digits	empty	**Memories 553–556 can be used only if the voice recording module is present!** **Unless the automatic dialing is off, the automatic dialing with confirmation is used.**
552	Checking call memory 2	up to 16 digits	empty	
553	Checking call memory 3	up to 16 digits	empty	
554	Checking call memory 4	up to 16 digits	empty	
555	Checking call memory 5	up to 16 digits	empty	
556	Checking call memory 6	up to 16 digits	empty	
558	Count of automatic dialing cycles for the checking call	0–9	3 cycles	0 = automatic dialing disable (the first digit is dialed once only).

Function Number and Name		Value Range	Initialization Value	Notes, Explanations
811 **821**	Switch 1,2 password addition	up to 16 digits	00 11 22	Adds another password to the list. The password may **not be identical** with any other password; otherwise it is rejected. Password 00 may not be entered from a keyboard. Each switch can have up to 10 passwords.
812 **822**	Switch 1,2 password removal	Valid password	–	Removes a password from the list. ***WARNING!*** *Remember to cancel password* ***00*** *with this function if you do not intend to use it!* Forgotten passwords can be removed by initialization only.
813 **823**	Switch 1,2 activation time	0–9 (seconds)	5 s	0 = the switch is out of operation
901 – dialing type		0 or 1	0 = tone	1=pulse 40/60
902 – dialing start time (after pick-up)		5 to 99 corresponds to 0.5 to 9.9 s	33 = 3.3 seconds	Time between pick-up and dialing start. Do not set time less than 2.7 s as required by the TBR-21 standard.
903 – DTMF level		0–12	6	1 step = 1 dB
904 – automatic dialing type		0–4	1	0 = disabled for all buttons 1 = loud dialing with confirmation 2 = silent dialing with confirmation 3, 4 = loud dialing without confirmation[1])
911 – number of rings until incoming call answering		1–99	2	Defines the moment of pick-up during ringing. ATTENTION! Select 1 if connected to Lift Call Connect, Order. No. 91330808E!
912 – maximum call duration		1 to 99 corresponds to 10 to 990 s	12 = 2 minutes	06 = 1 minute, 30 = 5 minutes, 99 = 16.5 minutes The call can be prolonged by pressing [*].
913 – seizure timeout (for automatic dialing)		1–99 corresponds to 10 to 990 s	3 = 30 seconds	The maximum time, during which the dispatcher has to answer and send confirmation, otherwise the **ST** hangs up and dials the following number. Starts at the dialing end.
914 – delayed calling		0–9 (count of cycles)	3 cycles = 33 seconds	applies to button 01 only
915 – hang-up timeout between calls		5–99 corresponds to 0.5 to 9.9 s	55 = 5.5 s	Do not set time less than 5 s as required by the TBR-21 standard.
916 – CANCEL input inversion		0 or 1	0	0 = contact closed (or voltage present) at **open** door, 1 = contact closed (or voltage present) at **closed** door.

Function Number and Name	Value Range	Initialization Value	Notes, Explanations	
931 – microphone trigger level	0–3	2	0 = maximum microphone sensitivity	These functions replace old model trimmers. Normally we do not recommend to change the settings. Any unprofessional setting may result in singing or deteriorate understandability.
932 – automatic response speed	0–3	2	3 = maximum response speed	
933 – receiving volume	0–15	7	15 = maximum receiving volume	
934 – transmitting volume	0–15	7	15 = maximum transmitting volume	
935 – message volume	0–15	7	15 = max. message volume	
936 – beep volume	0–12	12	12 = maximum tone volume	
937 – DTMF hearing volume	0–3	3	3 = max. DTMF hearing volume	
938 – loudspeaker volume	0–15	7	15 = max. loudspeaker volume	
941 – minimum continuous tone time	10–99	20=2s	If the tone is longer, the **ST** hangs up.	These parameters are used for call hang-up and during automatic dialing.
942 – min. busy tone period	0–2.55 s	8 = 0.08 s	These parameters set the busy tone detection.	
943 – max. busy tone period	0–2.55 s	70 = 0.7 s		
944 – max. tone-space difference	0–2.55 s	10 = 0.1 s		
945 – min. count of busy tone periods	2–9	4		
946 – min. tone frequency	Cannot be changed so far	300	These parameters define the tone frequencies to be detected.	
947 – max. tone frequency		550		
951 – min. ringing tone time	0.01 to 2 s	50 = 0.5 s [2])	The longest ringing period space must be in the interval between parameters 952 and 953.	If the selected count of periods is exceeded, the call is terminated. If the automatic dialing is on, another attempt follows. [3])
952 –min. long space time	0.5 to 10 s	10 = 1 s		
953 –max. long space time	1 to 10 s	60 = 6 s		
954 –count of ringing periods	01–99	10	Hangs up after this count.	
961 – maximum timeout for pressing the next digit	1–9	5 [s]	During password entering, etc.	
962 – minimum button pressing time	01–99		Applies to all buttons.	
963 – hang-up option with the same button	0 – disabled 1 – enabled	0	The calling party may not terminate the call according to applicable regulations.	
964 – option to dial another number by pressing another button	0 – disabled 1 – enabled	1	Correction of an implicit value in the table. Since the other buttons are not practically used, the parameter value is of minimum significance.	

Function Number and Name	Value Range	Initialization Value	Notes, Explanations
971 – count of message repetitions	0–9	3	There is a 3-second pause between two subsequent messages.
972 – record a message (Only if a voice recording module is available. Otherwise, the "Wait please, connection is being made" message is played back.)	Enter the service password, record 0 – 30 seconds	„Wait please, connection is being made"	Recording is password protected (to start enter * service password *). Start after the long tone end. To terminate recording, press any DTMF key on the phone. After recording is completed, the **ST** hangs up.
974 – Lift identification	16 digits	–	A new, digital parameter to facilitate lift identification to foreigners, e.g.
976 – Call end message language selection	0–9	1	**0 = ♪♪** 1 = English 2 = Czech 3 = Slovak 4 = German 5 = Russian 6 = Polish 7 = Slovene 8 = Portuguese 9 = Dutch 10 ... 99 = silence
977 – Outgoing call message language selection	0–9	1	
981 – checking call	0 – disabled 1 – enabled	0	0 = off 1 = checking call in 1 minute; if previously off, the checking call is enabled and the 3-day period initialization is executed. 2 = on, first call in 2 hours 3 = on, first call in 3 days ***Note:*** *The voice menu recognises states 0 and 1 only, but you may also enter values 2 and 3 to set the first checking call time. The time that is left before the next checking call is not announced in the voice menu.*
991 – service password	up to 16 digits	12345	
997 – password initialization for both switches	enter the service password		The execution of these commands takes a rather long time, typically approx. 5 seconds and 30 seconds at most. The **ST** is sending the continuous tone while deleting the memory. Re-enter the valid service password as the function parameter (as protection against unintended deletion if you enter a false function number).
998 – dialing memory deletion for all buttons	enter the service password		
999 – full initialization (incl. service password!)	enter the service password		

[1]) To parameter 904: The Automatic dialing without confirmation types 3 and (newly) 4 differ from each other in processing very short calls. Dialing 4 regards a call as successful in all cases while dialing 3 only if the switch was activated. Since the switch is not practically used for the **ST**, this difference is irrelevant.

[2]) A new implicit value, a lower probability of unintentional detection.

[3])In the event of automatic dialing without confirmation, the ringing tone is detected and terminated before the selected count of periods is reached, the call is regarded as successful.

Note

- Unless the **ST** is damaged electrically, the EEPROM guarantees 10 years of reliable data storing at least.

4. Function and Use

This section describes the basic and extending functions of the product **2N® SingleTalk**.
Here is what you can find in the section:

- 4.1 Function Description
- 4.2 Non-Stop Service Instructions for Use

4.1 Function Description

Note

- The information in this section is intended for those who are familiar with the foundations of telecommunications equipment and need to know detailed processes taking place in **ST**. It is unnecessary for common **ST** installations.

Outgoing Call

The **ST** is activated by pressing the **ALARM** button. After that, the **ST** "seizes" the line and establishes connection with the hotline or dispatching center personnel (for details see Automatic Dialing). During the call establishing, the person in the lift hears the dialing tone, then the DTMF dialing tones and the ringing tone, or "Wait please, connection is being made", or any other suitable message. The message usually starts with the "Wait please, connection is being made" statement and may include the **ST** id entification (address, lift number, etc.). Once the dispatching service answers the phone, the parties can start talking with each other.

Checking Call

The Checking Call is an automatic outgoing call whose purpose is to check the **ST** functi on. If activated, the function runs every 72 hours (3 days). The procedure is similar to that of an outgoing call. The difference lies in that a different message is played back, e.g. "Checking call", and a different set of numbers may be used.
Checking calls are typically received automatically – in case the dispatcher's centre is equipped with the **2N® LiftManager** software. A standard PC with an analog modem can be used for running the program.

Incoming Call

The dispatching center can also call the **ST** number. The **ST** answers the call after two rings (the count of rings is parameter-defined) and sends a sound signal. Now, for example, the person trapped in the lift keeps informed about rescue operations. Also, it can be checked remotely whether the **ST** has been connected and works.

Protection against Unintentional Initiation

Since the main purpose of the **ST** is to call help in case of emergency (whenever a person gets trapped in the lift), any call can be regarded as unnecessary, if the lift cabin door is open. So, where available, a door contact can be connected to the **ST** inp ut labeled as CANCEL and a delay can be programmed for the **ST** to make connection after the ALARM button is pressed. Therefore, in case someone presses the ALARM button by mistake, the lift gets to a certain floor during this delay, the door opens and the call is cancelled. Or, it is possible to set the minimum button pressing time to avoid most false ALARM cases.

Automatic Repeated Multiple Numbers Dialing with Confirmation

Caution

- This a default **ST** mode set by the manufacturer, which provides the highest possible connection reliability. Automatic dialling can disabled or switched into the 'no-confirmation' mode but, in that case, the manufacturer assumes no liability for subsequent damage if any.

Up to 6 telephone numbers and the count of dialing repetitions can be stored in the **ST** memory for the **ALARM** button (or 2 numbers where no voice recording module is available). The **ST** thus tries to get through to all numbers stored. Tone dialing (DTMF) is used as the most reliable connection-confirming criterion. The dispatcher must press button 1 on its telephone (in the DTMF mode). If the called number is busy or nobody answers the phone within a defined timeout, or in other cases (as defined in the table), the **ST** tries to call the following number from the list until it completes the pre-defined number of cycles. If the number of cycles is 0, automatic dialing is turned off and the **ST** calls to one number only.
In this mode, the **ST** repeats the "Wait please…" message (or any relevant user-recorded message) so many times as preset. The message can be muted by pressing button 2 , or confirming connection with button 1 .
The **ST** default mode is "Speakerphone automatic dialing with confirmation". There are some other modes designed for specific applications, one of them being "Speakerphone automatic dialing without confirmation"; see later.

Evaluation of Situations during Speakerphone Automatic Dialing with Confirmation

Situation	ST Activity
Silence or busy tone is heard upon seizure	This has no influence on the operation; the **ST** executes dialing with any line status and only then evaluates the situation.
Busy tone (after dialing)	The **ST** hangs up in approximately 2 seconds and dials the following number.
Talk or silence	The **ST** waits for a defined timeout (logon time), then hangs up and dials the following number.
Ringing tone	The **ST** waits for a defined count of rings, then hangs up and dials the following number.
Continuous tone (PBX)	The **ST** hangs up in approximately 2 seconds and dials the following number.
DTMF char 5 or #	The **ST** hangs up immediately and dials the following number.
DTMF char 1	The **ST** confirms receipt (2 beeps), mutes the message playback and the call continues for the defined period of time (maximum call time).
DTMF sign 6	**ST** sends identification but the connection is not confirmed. Used for **2N® LiftManager** applications.
2 3 4	These digits are interpreted as control characters.

Caution

- The quality of PSTN connection does not always allow for a reliable recognition of all the situations mentioned above. Any excessive noise in the lift car can have a negative impact too, slowing down, yet never discontinuing, automatic dialing (the busy tone is not detected). It holds true in general that the DTMF is the most reliable way of signaling and so is preferred for confirmation. However, the connection is established (yet for a shorter period of time) even in extreme cases, e.g. when the **ST** is unable to recognize the DTMF).

Automatic Repeated Multiple Numbers Dialing without Confirmation

This mode can be used wherever no trained staff for automatic dialing with confirmation is available. The called person need not press any button. The two modes have a common set of numbers, count of cycles, identical responses to the busy tone, and so on.
The difference is that the non-confirmation mode detects the ringing tone and, if this tone is terminated before the pre-defined count of rings is reached, it assumes that the called party has answered and the connection has been established successfully.

Warning

- If you select this mode, make sure that it works reliably. Remember that different countries and networks may use different dial tones and your dial tone may not be recognised correctly.

Note

- In this mode, the **ST** does not repeat the "Wait please..." message (or any relevant user-recorded message) after the dialing end because this would make it impossible to recognize the ringing tone reliably. The message is reproduced once shortly after the called party answers. The **ST** cannot be controlled using buttons 1 to 5

Evaluation of Situations during Speakerphone Automatic Dialing without Confirmation

Situation	ST Activity
Silence or busy tone is heard upon seizure	This has no influence on the operation; the **ST** execute s dialing with any line status and only then evaluates the situation
Busy tone	The **ST** hangs up in approximately 2 seconds and dials the following number
Talk or silence	The **ST** waits for a defined timeout (logon time), then hangs up and dials the following number
Continuous tone (PBX)	The **ST** hangs up in approximately 2 seconds and dials the following number
Ringing tone is terminated before 10 rings (or as programmed) are reached	This is considered as a successful call, the call continues for the defined period of time (maximum call time). The message is played back once.
Ringing tone with 10 rings (the count can be defined)	The **ST** hangs up and dials the following number
1 to 9 , 0	These digits are interpreted as the switch control password beginning
#	Dialing type 3 hangs up and calls next number, Dialing type 4 hangs up and stops calling.
valid switch password(switch activation)	Dialing type 4 consider such call as a successfull, even if ringing tone is not detected.

Warning

- Be sure to disable your voice mailbox, fax machine or any other equipment connected to the called numbers to avoid premature answering. This would terminate the dialing automatically.

Call Termination (Outgoing and Incoming Calls)

- The busy or continuous tone*) is detected (for PBX call termination).
- 10 ringing tone*) periods are detected (for a change use parameter 954). This is an innovation compared with the earlier model.
- The maximum call length has elapsed – the **ST** plays back the "Attention, your call is being terminated" message 10 seconds before the end; the call may be prolonged.
- vyprší nastavená maximální délka hovoru – 10 sekund před vypršením **ST** přehraje hlášení „Pozor, končí hovor", hovor lze prodloužit.
- The # or 5 character is received.
- The timeout has expired during programming, or upon message recording.
- 30 seconds after switch activation.
- The same button is pressed during an outgoing call that was used for making the call (this function is disabled in the lift version).

Note

- The **ST** is able to detect the continuous, busy and ringing tones even if the tone has two frequency components as the case is in the UK and USA (BTT) and in Canada. This new function requires no parameter. One of the tone components must be 440 Hz

4.2 Non-Stop Service Instructions for Use

DTMF Control during the Call

Where Automatic dialing with confirmation is enabled, it is possible to use tone dialing during the call to control the **ST** in accordance with the table below. For convenience, commands 1 to 5 are arranged in the order they are usually used in.

DTMF char	FUNCTION DESCRIPTION
1	It is a **confirmation** notifying **SingleTalk** (hereinafter referred to as **ST**) that the call was successful. **ST** mutes the message playback, sends out the confirmation signal and the call continues until the end of the timeout and the following commands can be used
2	Message playback **muting**. **CAUTION:** Now that the SW has been changed, it is no more necessary for the call!
3	Repeated **playback** of the voice recording module for 1 message repetition
4 **or** *	Call **prolongation**: the call is prolonged up to 30 seconds after this command in case it ended earlier. It can be used repeatedly.
5 **or** #	**Call termination.**
6	ST sends identification but the connection is not confirmed. Used for the LiftManager only.
7 t o 9 and 0	These digits are interpreted as the switch control password beginning.

(Automatic dialling with confirmation)

Note

- When the message is being played back, **it is impossible to speak** into the **ST** microphone! Hence, to talk with the person in the lift, the service must **always use function 2** (muting) or wait till the **ST** stops repeating the message.
- The above-stated commands **may not be accepted** in case they are sent during the message and the connection is of a poor quality. Therefore, the **ST** inserts a 3-second pause between the repeated message, during which the receiving of DTMF commands is absolutely undisturbed.

Switch Control

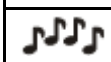
The switch (if available) **can be used** during outgoing and incoming calls. The switch can be activated using a pre-defined password; the format is *password* (the maximum password length is 16 digits). The **ST** confirms the switch activation and turns it on for the pre-defined period of time (1 to 10 seconds). It is not possible to talk during the switch on-status and the **ST** signals this action with tones as per the signaling review table. The call is terminated 30 seconds after the switch activation.

Tip

- The switch can be used, for example, for resetting the lift Each switch can be controlled with up to 10 variable passwords. A new feature is that the password can be entered without asterisks too if it starts with 6 to 9, or 0. (This limit applies to the use of Automatic dialing with confirmation.)

ST Signalling Overview

ST uses variable signals to communicate with the operating personnel during programming, calls, and so on. For an overview of the signals including meanings refer to the table below:

SIGNAL	NAME	MEANING
	Confirmation	Sent during an incoming call to the line immediately after off-hook (the calling party hears it). Remote switch activation.
	Rejection	Whenever a non-programmed button is pressed. Heard from the loudspeaker to signal line connection. Sent during an incoming call instead of confirmation, indicating that the **ST** has not been programmed or its memory has been damaged.
	Storing	Remote switch activation end.
	Hang-up	Sent close before the call end (in all cases).
Long continuous tone	Deleting	Sent during dialing memory clearing, or full initialization
"Attention, your call is being terminated"		Signals during an outgoing or incoming call that the maximum call duration will elapse in 10 seconds.
"Wait please..."		Programmable connection-waiting message.
"Communicator No. ... is calling ."		Programmable identification message.

Survey of Messages

The table below includes a survey of language versions for standard announcements. English is selected by default. To select another language use parameters 976 and 977.

Value of Parameter 976	Language selection – English version	End of call message	Outgoing call message		
			ID message.Parameter 975 must contain digit 2, 3 or 5	Confirmation message. Parameter 975last digit = 5	Checking call message
0	Tone signal	♪♪	off	off	off
1 (default value)	English	Attention, your call is being terminated	Communicator number..... is calling	Connection confirmed	Checking Call
2	German	Achtung, das Gespräch wird beendet	Es ruft das Notruftelefon Nummer……an.	♪♪	Der Kontrollanruf
3	Portuguese	.....	.....	♪♪	.....
4	Dutch	.....	.....	♪♪	.....

Value of Parameter 977	Language selection – English version	Outgoing call message	Note
0	Tone signal	off	▪ To play this message, parameter 975 must start with digit 5. ▪ Parameter 977 has a range 0 – 99. On customer's request, adiitional messages can be added; e.g. another languages or more alternative messages in the same language.
1 *)	**English**	**Wait please**	
2	German	Warten Sie bitte	
3	Portuguese	.....	
4	Dutch	.....	

Caution

- The Czech version and custom specific models has another set of languages.

ST Identification

If parameter 974 is filled with a number, and parameter 975 contains digit 2, 3 or 5, **ST** identifies itself automatically by replaying "Communicator number... is calling". Use parameter 976 to set the language for lift number identification.

5. Technical parameters

This section describes the technical parameters of the product **2N® SingleTalk**.

- 5.1 Technical parameters

5.1 Technical parameters

Electric Parameters

Parameter	Value	Conditions
Minimal off-hook line current	15 mA	Off-hook
Minimal on-hook line voltage	22 V	Off-hook
DC voltage drop (off-hook)	< 8 V< 16 V	I = 25 mA I = 50 mA
Off-hook resistance	>1MΩ	U = 25..100 V
Off-hook AC impedance	220 Ω + 820 Ω paral. 115 nF	20 to 60 mA
Return loss	> 14 dB	20 to 60 mA
Bandwidth	300 to 3500 Hz	20 to 60 mA
Ringing impedance	> 2 kΩC = 0.47 µF	25 to 50 Hz
Ringing detector sensitivity	10 to 20 V	25 to 50 Hz
Pulse dialing	40 / 60 ms	
DTMF dialing level	-9.0 +2.0/-2.5 dB a -11.0 dB +2.5/-2.0 dB	20 to 60 mA
Overvoltage protection – between A, B	1000 V	8 / 20 µs

Notes:

1) Whichever ringing form is accepted.

Switch Parameters

Minimum voltage	9 V AC or DC
Maximum voltage	24V AC or DC
Maximum current	1A AC or DC
Resistance – breaking	min. 400 kΩ
Resistance – closing	cca 0,5 Ω
Fuse	resettable

Other Parameters

Universal dimensions	65×130×24 mm
Compact dimensions	100×185×16 mm
Working temperature range	-20 to +70 °C

6. Supplementary Information

This section describes supplementary information of the product **2N® SingleTalk**. Here is what you can find in this section:

- 6.1 Troubleshooting
- 6.2 List of Abbreviations
- 6.3 Regulations and Directives
- 6.4 General Instructions and Cautions

6.1 Troubleshooting

For the most frequently asked questions refer to faq.2n.cz.

6.2 List of Abbreviations

- ST – **2N® SingleTalk**
- Incoming call – A call from the dispatching centre to the central unit
- Outgoing call – A call from the central unit to the dispaching centre
- Checking call – An automatically activated call from the central unit to the dispatching centre
- Dispatching centre – A workplace that receives emergency calls, checking calls, and lift error reports if any. There may be separate workplaces, each for one type of calls, even mobile ones
- LM, LiftManager – **2N® TELEKOMUNIKACE** dispatcher software
- PBX – A private branch exchange (equipped with a PSTN line and local analog lines)
- PSTN – The public switched telephone network. It is assumed for simplification that ST is connected to the PSTN although it works on a PBX line in the same way

6.3 Regulations and Directives

Europe

2N® SingleTalk conforms to the following directives and regulations:

Directive 1999/5/EC of the European Parliament and of the Council, of 9 March 1999 – on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

Directive 2004/108/EC of the Council of 15 December 2004 on the harmonisation of the laws of Member States relating to electromagnetic compatibility

Commission Regulation (EC) No. 1275/2008, of 17 December 2008, implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment.

6.4 General Instructions and Cautions

General Instructions and Cautions:

- Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.
- Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.
- The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.
- Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.
- Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.
- The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.
- The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.
- The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.
- The manufacturer shall not make any warrant with regard to data loss or damage.
- The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.
- All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.
- The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.
- The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.
- The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

Electric Waste and Used Battery Pack Handling

Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or short-circuited either.

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